clearly seen where they are encased in the skin. The tips of all the digits are free, including digit III., which has its tip free and projecting beyond the wing-fold. On removing the skin and examining the skeleton, phalanx 1 is distinct, then a rod of cartilage extends to the tip of the projecting fold of skin (*a*, fig. 4). This rod of carti-

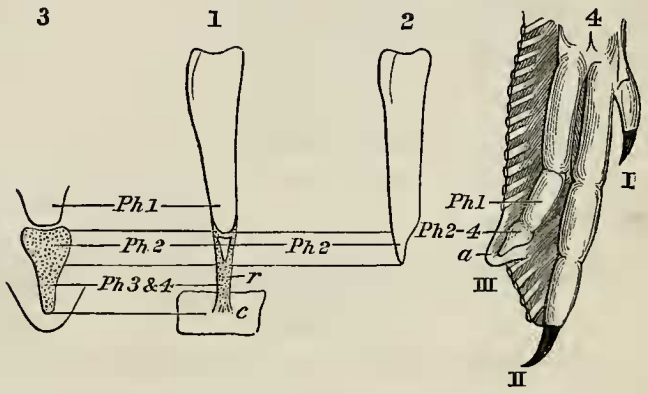

Fig. 1. Phalanx 1 and the vestigial cartilage of digit III., adult Ostrich. *Ph.* 1, 1st phalanx; *Ph.* 2, 2nd phalanx; *r*, vestigial cartilaginous rod; *c*, connective tissue.
Fig. 2. Phalanx of digit III. of another adult Ostrich, showing Ph. 2 ankylosed.
Fig. 3. The distal part of digit III. in the manus of the embryo (fig. 4).
Fig. 4. Ventral view of left manus of embryo. *a*, free tip of digit III.

lage probably represents the remaining phalanges of the digit, which are never definitely differentiated except phalanx 2: this is ossified in the broader basal third of the rod; in the embryo, before ossification commences, the basal part is much the broadest. All this points to the conclusion that this cartilaginous rod is a vestigial structure, representing in addition to the second (ossified in the adult), the third probably, and possibly also the fourth, phalanx of digit III. (see figures 1 and 3).

4. On the Terrestrial Mollusks of the Viti Islands.—Part II.[1]

By Andrew Garrett, of Huahine, Society Islands.
(Communicated by Mr. John H. Ponsonby, F.Z.S.)

[Received December 8, 1886.]

Genus Melampus, Montfort.

1. Melampus luteus, Quoy & Gaimard.

Auricula lutea, Quoy & Gaimard, Voy. Astrol. ii. p. 163, pl. 6. figs. 25–27; Deshayes, Lam. Hist. viii. p. 388; Küster, Auric. p. 39, pl. 6. figs. 1–3; Mousson, Jav. Moll. p. 47, pl. 5. fig. 6.

[1] See Part I., *suprà*, p. 164.

Conovulus luteus, Anton, Verz. p. 48.

Melampus luteus, Beck, Ind. p. 106; M. E. Gray, Figs. Moll. Anim. pl. 306. fig. 5; H. & A. Adams, Proc. Zool. Soc. 1854, p. 10; Gen. Moll. ii. p. 243; Pfeiffer, Syn. Auric. no. 30; Mon. Auric. i. p. 36; Mörch, Cat. Yoldi, p. 38; Mousson, Journ. de Conch. 1869, p. 346; Martens & Langk. Don. Bism. p. 55; Gassies, Faun. Nouv. Cal. p. 62; Pease, Journ. de Conch. 1871, p. 93; Proc. Zool. Soc. 1871, p. 477; Paetel, Cat. Conch. p. 114; Schmeltz, Cat. Mus. Godeff. v. p. 88; Garrett, Proc. Phil. Acad. Nat. Sci. 1879, p. 28; Journ. Phil. Acad. Nat. Sci. 1881, p. 402, 1885, p. 89.

Easily distinguished by its large size (18 millim.) and uniform luteous colour. Abundant just above high-water mark; it ranges from the Gambier Islands to the East Indies.

2. Melampus fasciatus (Deshayes).

Auricula fasciata, Deshayes, Encycl. Méth. ii. p. 90; Lam. Hist. viii. p. 337; Küster, Auric. pl. A. figs. 2, 3; Mousson, Java Moll. p. 46, pl. 5. figs. 28, 29.

Melampus fasciatus, Beck, Ind. Moll. p. 107; (*Tralia*) H. & A. Adams, Proc. Zool. Soc. 1854, p. 11; Pfeiffer, Syn. Auric. no. 33; Mon. Auric. i. p. 38; Mousson, Journ. de Conch. 1869, p. 348; Pease, Proc. Zool. Soc. 1871, p. 477; Martens & Langk. Don. Bism. p. 55; Paetel, Cat. Conch. p. 114; Schmeltz, Cat. Mus. Godeff. v. p. 88; Garrett, Journ. Phil. Acad. Nat. Sci. 1881, p. 402, 1885, p. 90.

Conovulus fasciatus, Griffith, Cuv. Anim. Kingd. pl. 27. fig. 13; Anton, Verz. p. 48; Guérin, Icon. Moll. p. 17, pl. 7. fig. 8.

Tralia (*Pira*) *fasciata*, H. & A. Adams, Gen. Moll. ii. p. 240.

This, like the preceding species, lives just above high-water mark, and has the same extensive geographical range.

It is subject to considerable variation in shape and colour. The type varies from bluish white to luteous, and is girdled with from four to six narrow chestnut bands on the body-whorl. Varieties of a uniform bluish-white, corneous, brownish, or orange-brown are not infrequent, as well as one of an orange-brown with three chestnut bands. The spire is marked with minute radiating grooves.

3. Melampus parvulus, Nuttall.

Melampus parvulus, Nuttall, MS., Pfeiffer, Syn. Auric. no. 11; Mon. Auric. p. 24; H. & A. Adams, Gen. Moll. ii. p. 243; Pease, Proc. Zool. Soc. 1871, p. 477; Martens & Langk. Don. Bism. p. 56, pl. 3. fig. 10; Paetel, Cat. Conch. p. 114; Brazier, Quart. Journ. Conch. i. p. 274.

Common on the margins of mangrove-swamps. Mr. Brazier records it from Torres Straits. I took a few examples at Samoa and Wallis Islands. Mr. Nuttall obtained the type specimens at the Sandwich Islands. I have also received examples from New Caledonia.

The Viti shells, which are a little smaller than Sandwich-Island specimens, do not differ from the latter except in having in some examples one or two more denticles or plicæ on the parietal wall, and the base more distinctly impressedly striated. It may be recognized by its ovate shape, smooth shining surface, dark chestnut or olive-brown colour, short, convexly conoid spire, and mucronated apex. On the lower portion of the parietal region may be observed two approximating folds, the lower one the smaller and occasionally wanting. There are usually one or two small denticles above, and the palate has five to seven laminæ. The columella-fold is continuous with the basal portion of the peristome.

M. granum, Gassies, is either the same as *M. parvulus* or very closely related.

4. Melampus tongaensis, Mousson.

Melampus tongaensis, Mousson, Journ. de Conch. 1871, p. 22, pl. 3. fig. 8; Schmeltz, Cat. Mus. Godeff. v. p. 88; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 316.

A number of examples were taken in the same station as the preceding species. Dr. Gräffe found the type specimens at Tongatabu, one of the Tonga Islands. Prof. Mousson has described a variety *pallidula* (*l. c.*) from Vavao in the same group.

It is very closely allied to, and perhaps only a form of, *M. parvulus*. It is about the same size and colour, but is a little more oblong in shape and the spire more produced. The dentation and plicæ are the same in the two species.

5. Melampus semisulcatus, Mousson.

Melampus semisulcatus, Mousson, Journ. de Conch. 1869, p. 347, pl. 15. fig. 2; Paetel, Cat. Conch. p. 114; Schmeltz, Cat. Mus. Godeff. v. p. 88; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 318; Pease, Proc. Zool. Soc. 1871, p. 477.

Occurs on the margins of mangrove-swamps, where I gathered thousands of specimens. I also obtained it in similar stations at Upolu, one of the Samoa Islands.

This species is of an oblong pear-shape and a uniform cinnamon colour; it has a short, usually eroded, spire, and is spirally grooved, the grooves being more or less evanescent on the middle of the body-whorl. There are three folds in the parietal region and usually two lamina in the palate. Length 11 millim.

6. Melampus sculptus, Pfeiffer.

Melampus sculptus, Pfeiffer, Proc. Zool. Soc. 1859, p. 29; Mon. Pneum. (Auric.) iv. p. 316.

Melampus fricki, Pfeiffer, Proc. Zool. Soc. 1859, p. 29; Mon. Pneum. (Auric.) iv. p. 304; Pease, Proc. Zool. Soc. 1871, p. 477.

Melampus semiplicatus, Pease, Proc. Zool. Soc. 1860, p. 146, 1869, p. 60 (animal), 1871, p. 477; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 304; Schmeltz, Cat. Mus. Godeff. v. p. 88; Layard, Cat. Land and Freshw. Moll. N. Caled. p. 4.

Melampus strictus, Gassies, Journ. de Conch. 1874, p. 213; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 324.

Melampus pseudocommodus, "Mousson," Schmeltz, Cat. Mus. Godeff. iv. p. 69; Paetel, Cat. Conch. p. 114.

A few examples found just above high-water mark on a small islet on the north coast of Vanua Levu.

Pfeiffer's type specimens in Cuming's Museum were labelled Admiralty Islands. His *M. fricki*, together with Pease's *semiplicatus* and Mousson's *pseudocommodus*, were obtained at the Sandwich Islands, where I first discovered Pease's type specimens. Shells received from New Caledonia labelled *M. strictus* do not differ from Viti examples.

The longitudinal plications on the upper third of the shell, pale or dark brownish colour, numerous whorls, rather long acute spire, and single parietal fold will readily distinguish this species. The basal portion is also more or less distinctly plicated. The palate has from one to three laminæ. Length 10 millim.

7. Melampus consanguineus, sp. nov.

Shell imperforate, solid, obovate, smooth, shining, faintly striated with lines of growth, light chestnut-brown; spire convexly conoid, apex mucronate; sutural line distinct, linear; whorls 7, flattened, the last one subangulate on the shoulder, and obliquely impressedly striated at the base; the lower portion of the parietal region with two spiral plications, the upper one the larger, and occasionally there exists one or two posterior denticles; palate with from 11–14 white plicæ; columellar fold continuous with the basal portion of the peristome.

Length 9, diam. 5 millim.

Not uncommon at high-water mark at Vanua Levu.

The uniform pale chestnut colour and numerous plications in the throat will determine it.

8. Melampus striatus, Pease.

Melampus striatus (*Tralia*), Pease, Proc. Zool. Soc. 1861, p. 244, 1871, p. 477; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 311; Garrett, Journ. Acad. Nat. Sci. Phil. 1885, p. 89.

Melampus montrouzieri, Souverbie, Journ. de Conch. 1866, p. 148, pl. 6. figs. 1, 1*a*; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 312.

Melampus ornatus, Mousson, Journ. de Conch. 1871, p. 21, pl. 3. fig. 7; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 312.

Not infrequent on the margins of mangrove-swamps in the Viti, Tonga, and Samoa Islands. It also inhabits the Society Islands and New Caledonia.

It may be distinguished by its oblong-ovate form, the brownish-corneous, chestnut-brown, or greenish-brown colour, its mucronated spire, and the 8 whorls marked by closely-set transverse impressed lines, the upper half with small longitudinal plications, which give

that part of the shell a granulated appearance. The transverse lines are frequently evanescent on the middle of the body-whorl. There are from two to three folds on the parietal region, the upper one small and granuliform. There may be observed one to three lamelliform plications in the palate, and sometimes several raised white parallel striæ. Length 9–10 millim.

M. granifer, Mousson, an East-Indian species, is very closely allied to, if not identical with, *M. striatus*.

9. Melampus adamsianus, Pfeiffer.

Melampus adamsianus, Pfeiffer, Proc. Zool. Soc. 1854, p. 121; Syn. Auric. no. 12; Novit. Conch. i. p. 18, pl. 5. figs. 17–19; Mon. Auric. i. p. 24; Gassies, Faun. Nouv. Caléd. p. 57, pl. 7. fig. 2; Hutton, Cat. Moll. New Zeal. p. 576 ("ex Pfeiffer")

Tralia adamsiana (*Pira*), H. & A. Adams, Gen. Moll. ii. p. 244.

Melampus variabilis, Gassies, Faun. Nouv. Caléd. p. 65, pl. 6. fig. 8; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 315.

Melampus cinereus, Gassies, Journ. de Conch. 1867, p. 62; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 314.

Melampus avenaceus, Mousson, Journ. de Conch. 1870, p. 134; 1871, var. *vavaoensis*, p. 21.

Melampus angustus, "Mousson," Schmeltz, Cat. Mus. Godeff. iv. p. 68; Paetel, Cat. Conch. p. 114 (juvenile).

A small and very variable species, 7 to 10 millim. long, and of various colours—light or dark chestnut, luteous, fulvous, cinereous, frequently ornamented with bands and lines of a chestnut colour on a pale ground or pale bands on a dark ground. The shape varies from oblong-ovate to subcylindrical; surface smooth, shining; base with oblique incised striæ. Spire short or elongate, acute, obscurely radiately plaited or grooved. Parietal region with from one to four plications, the posterior two when present granuliform. Columellar fold more or less continuous with the peristome. The variety *vavaoensis* is common in the Viti group, associated with the type, into which it gradually intergrades.

Specimens occur in great profusion just above high-water mark in sheltered places. Dr. Gräffe found it in the Tonga group and it is abundant in New Caledonia, whence I have received numerous examples labelled *M. adamsianus*, *M. cinereus*, and *M. variabilis*. The New-Caledonian shells exhibit the same variation as the Viti shells, some of which have the spire so much elongated that they might easily be mistaken for a distinct species; but having carefully studied several thousand specimens collected in the latter group, I find the character individual only. The number of plications in the aperture cannot, except in certain species, be relied on as a specific character. It was first described from specimens in the Cumingian Museum, and the habitat "New Zealand" is probably erroneous. Mr. Hutton, in his Catalogue of New-Zealand Mollusca, merely repeats Pfeiffer's description. Von Martens does not include it in his list of New-Zealand shells.

10. Melampus crebristriatus, sp. nov.

Shell imperforate, solid, obovate, slightly shining, striated with lines of growth and marked by rather crowded transverse incised lines; colour dark chestnut-brown or fulvous, with or without two light chestnut bands; spire mucronate, convexly conoid; suture distinct, linear; whorls 7–8, subplanulate, the last one subangulate on the shoulder; the lower portion of the parietal region with two subcontiguous folds, the lower one small, and occasionally there exists small posterior denticles; palate with from 10–18 whitish laminæ on a layer of whitish callus; peristome and columella fulvous.

Length 10–13, diam. 6–7 millim.

A few examples found near high-water mark on the north coast of Vanua Levu.

11. Melampus rusticus, sp. nov.

Shell small, imperforate, obovate, finely striated, brown, with irregular longitudinal fulvous stripes and small spots; spire short, conoid, apex eroded, truncate; whorls 4 remaining, last one subangulated, obliquely striated at the base; aperture elongate, narrow, slightly oblique, violaceous or brown, base rounded; parietal region with an acute horizontal lamina just below the middle; columellar fold sharp, oblique, and continuous with the acute peristome; palate with 4–6 faint laminæ.

Length 7, diam. 5 millim.

Rather common on the margins of mangrove-swamps. I also found it in the Tonga and Samoa Islands.

It is the same shape as, but smaller than, *M. semisulcatus*, with which it is found associated. It is also darker coloured, and differs from the latter in the absence of spiral sulcations and in having only one parietal fold.

12. Melampus incisus, sp. nov.

Shell imperforate, obconic, solid, marked by fine incremental striæ and spiral incised lines, which are sometimes evanescent on the middle of the body-whorl; colour brown or luteous, with or without four transverse chestnut bands, and frequently with irregular longitudinal more or less interrupted fulvous lines and dots; spire short, conoid, apex eroded, truncate; whorls 5 remaining, last one subangulated above; suture linearly impressed and slightly lacerated; aperture somewhat oblique, elongate, violaceous brown; parietal region with two contiguous folds just above the columellar plait, the upper one the larger, above which are from two to six more or less distinct denticles; palate with five to fourteen white irregular laminæ; columellar fold oblique, continuous with the peristome.

Length 8–10 millim.

Not infrequent on the margins of mangrove-swamps in Vanua Levu.

Genus Tralia, Gray.

1. Tralia melanostoma (Garrett).

Persa melanostoma, Garrett, Amer. Journ. Conch. 1872, p. 224, pl. 19. fig. 11 ; Schmeltz, Cat. Mus. Godeff. v. p. 87.

Melampus melanostoma, Pfeiffer, Mon. Pneum. (Auric.) iv. p. 325.

Abundant and gregarious under stones, near and a little below high-water mark, on the east end of Tavinni Island.

A small oblong-ovate or elliptically ovate tawny-brown species, with a blackish aperture, short, acute, spirally striated spire, and generally with a transverse brown band beneath the suture. Aperture rounded at the base, narrow above. Parietal region with one or two superior denticles, and a large fold just above the columellar plait. Peristome thick, labiated within and sinuous above. Length $4\frac{1}{2}$ millim.

2. Tralia costata (Quoy & Gaimard).

Auricula costata, Quoy & Gaimard, Voy. Astrol. ii. p. 173, pl. 13. figs. 43–46 ; Deshayes, Lam. Hist. viii. p. 337 ; Küster, Auric. p. 46, pl. 7. figs. 5–7.

Melampus costatus, Beck, Ind. Moll. p. 107 ; (*Tralia*) H. & A. Adams, Proc. Zool. Soc. 1854, p. 12 ; Pfeiffer, Syn. Auric. no. 56 ; Mon. Auric. i. p. 55 ; Mousson, Journ. de Conch. 1870, p. 135 ; Paetel, Cat. Conch. p. 114.

Tralia costata (*Persa*), H. & A. Adams, Gen. Moll. ii. p. 245 ; Chenu, Man. Conch. i. p. 477. fig. 3527.

Common, associated with the preceding species.

A solid, ovate, longitudinally ribbed, fulvous or reddish-brown species, with three plaits on the parietal wall and columella. The peristome is thick and sinuous above. Length 8–10 millim.

3. Tralia alba (Gassies).

Melampus albus, Gassies, Journ. de Conch. 1865, p. 211 ; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 326.

Melampus lucidus, Pease, Amer. Journ. Conch. 1869, p. 75 ; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 327.

Melampus pellucidus, Pease, Journ. de Conch. 1871, p. 93.

Two specimens occurred to my notice under a clump of coral on the east coast of Tavinni Island.

A smooth white or horn-coloured species, $3\frac{1}{2}$ to 5 millim. long, of an oblong-ovate form, with a rather produced spire, and the plications the same as in the preceding species.

Genus Laimodonta, Nuttall.

1. Laimodonta layardi, H. & A. Adams.

Ophicardelus layardi (*Laimodonta*), H. & A. Adams, Proc. Zool. Soc. 1854, p. 35.

Laimodonta layardi, H. & A. Adams, Gen. Moll. ii. p. 246.

Melampus layardi, Pfeiffer, Syn. Auric. no. 48; Mon. Auric. i. p. 51; Gassies, Faune Nouv. Caléd. p. 61, pl. 7. fig. 7; Tennent's Ceylon, i. p. 239; Cox, "Exchange List," p. 33; H. Nevill, Enum. Hel. etc. Ceylon, 1871, p. 4.

Laimodonta conica, Pease, Proc. Zool. Soc. 1862, p. 242; Amer. Journ. Conch. 1868, p. 101, pl. 12. fig. 15; Journ. de Conch. 1871, pp. 93, 94; Proc. Zool. Soc. 1871, pp. 470, 477; Schmeltz, Cat. Mus. Godeff. v. p. 81; Garrett, Journ. Phil. Acad. Nat. Sci. 1881, p. 403, 1885, p. 91.

Laemodonta conica, Martens & Langk. Don. Bism. p. 57, pl. 3. fig. 13.

Laimodonta anaaensis, Mousson, Journ. de Conch. 1869, p. 63, pl. 5. fig. 1.

Plecotrema anaaensis, Paetel, Cat. Conch. p. 114.

Melampus conicus, Pfeiffer, Mon. Pneum. (Auric.) iv. p. 319.

"?" *Melampus anaaensis*, Pfeiffer, *l. c.* p. 320.

A few dead examples found in beach-sand.

Since the publication of my paper on the Land-shells of Cook's Islands Mr. E. L. Layard has sent me for determination a Ceylon species of *Laimodonta*, which proves to be *L. layardi*, and is identical with Pease's *L. conica*. Dr. Cox and Gassies record *L. layardi* from New Caledonia, and Pease quotes it (*conica*) from "Central Pacific." I have obtained it in all the groups from the Paumotus to the Viti Isles.

The species now under consideration is closely allied to the Sandwich-Island *L. bronni*, but is smaller, more slender, and the spiral engraved lines are more conspicuous. My examples average from 6 to 8½ millim. in length. Colour chestnut-brown, with one or two whitish bands. The outer lip is slightly sinuous posteriorly and has one or two internal riblets. All the three descriptions alluded to mention a single plait in the palate. In the eight specimens before me six have two riblets in the palate.

Station under stones above high-water mark.

Genus Pedipes, Adanson.

1. Pedipes jouani, Montrouzier.

Pedipes jouani, "Montrouzier," Souverbie, Journ. de Conch. 1862, p. 244, pl. 9. fig. 11; Gassies, Faun. Nouv. Caléd. p. 65, pl. 6. fig. 22; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 332.

Pedipes subglobosus, Garrett, Proc. Phil. Acad. Nat. Sci. 1873, p. 236, pl. 3. fig. 70.

Eight examples found lurking under stones a little below high-water mark at Lanthala Island.

Our specimens do not differ from the New-Caledonian shells except in being paler. Its subglobose form, small, crowded granulated spiral ridges, fulvous-brown colour, slightly shouldered body-whorl, and short mucronated spire will readily distinguish it. The flattened callose columella is armed with two compressed transverse folds,

above which may be observed a sharp deflected parietal plait, and a tubercle on the inner margin of the acute peristome, which latter is thickened within. Length 4½ millim.

Genus Pythia, Bolten.

1. Pythia pollex (Hinds).

Scarabus pollex, Hinds, Ann. Nat. Hist. x. p. 82; Voy. Sulph., Zool. p. 60, pl. 16. figs. 9 & 10; A. Adams, Proc. Zool. Soc. 1850, p. 150; Ann. Nat. Hist. 2nd ser. viii. p. 69; Reeve, Conch. Icon. sp. 7, fig. 7.

Pythia pollex, Pfeiffer, Syn. Auric. no. 82; Mon. Auric. i. p. 86; Brit. Mus. Cat. Auric. p. 65; H. & A. Adams, Gen. Moll. ii. p. 240; Mousson, Journ. de Conch. 1870, p. 133; Paetel, Cat. Conch. p. 114; Schmeltz, Cat. Mus. Godeff. v. p. 87; Cox, Proc. Linn. Soc. New South Wales, vi. p. 611.

Scarabus zonatus, Hombron & Jacquinot, Voy. Pôle Sud, Zool. v. p. 41, pl. 10. figs. 18–20.

Very abundant and generally distributed throughout the group. Occurs beneath decaying vegetation in forests near the sea-shore.

This species is subject to considerable variation in size, shape, and colour. Though usually umbilicated, it is nevertheless very frequently imperforate. The shape varies from broad ovate to oblong ovate; spire subacute, more or less produced, and laterally subangulated. The sculpture consists of longitudinal, closely set, elevated striæ, often evanescent on the body-whorl, and very conspicuous and slightly arched on spire and upper part of the last whorl. The superior parietal tooth is subtriangular, the lower one compressed, fold-like, and subduplicated. The columellar plait is slightly oblique, compressed, and in imperforated specimens is continuous with the broadly expanded and slightly reflected peristome. The palate is armed with two stout and from four to six small teeth.

The colour varies from light chestnut to blackish chestnut, more or less conspicuously mottled with luteous, and generally with one or two pale transverse bands above. The varices, which are not very conspicuous, are usually spotted with white or luteous. Uniform horn-coloured or luteous specimens with or without chestnut mottlings are not uncommon. Aperture white or buff-yellow, with or without chestnut maculations. Sometimes the very dark examples show three or four pale transverse bands. The following measurements will show the variation in shape and size:—

Length 36, diam. 21 millim.
„ 34, „ 23 „
„ 23, „ 15 „

2. Pythia albovaricosa, Pfeiffer.

Pythia albovaricosa, Pfeiffer, Zeit. Malak. 1853, p. 190; Syn. Auric. no. 84; Mon. Auric. i. p. 87; Brit. Mus. Cat. Auric. p. 66;

Novit. Conch. i. p. 6, pl. 3. figs. 1 & 2; H. & A. Adams, Gen. Moll. ii. p. 240; Cox, Proc. Linn. Soc. New South Wales, vi. p. 592.

Scarabus albovaricosus, Reeve, Conch. Icon. sp. 4, pl. 1. figs. 2, 6.

In looking over a lot of about 200 specimens of *P. pollex*, I found amongst them an example of Pfeiffer's *P. albovaricosa*, which does not differ in a single feature from five Solomon-Island specimens received from Dr. Cox. I cannot indicate the island whence the shell was obtained, but am inclined to believe it was Kantavu.

Dr. Pfeiffer and Reeve, on the authority of Cuming, cite Celebes as habitat of this species; and Dr. Cox, in his valuable paper on the "Nomenclature and the Distribution of the genus *Pythia*," says it is a common Solomon-Island species. As it is now well ascertained that many of Cuming's localities are erroneous, the former habitat needs confirmation.

This species may be characterized by its large size (31 to 44 millim.), rather light texture, oblong-ovate form, smooth body-whorl, the upper part of which, together with the spire, is marked by short, longitudinal, slightly arcuated grooves. Colour light or dark chestnut, sometimes light fulvous with very small darker irrorations. The varices are white with wide black or dark chestnut margins, and the six specimens now before me all have a large lateral diffused blackish patch on the front and back of the body-whorl. Aperture luteous or whitish. Palatal teeth 4 or 5.

3. Pythia savaiensis, Mousson.

Pythia pantherina, A. Adams, var. *uveana*, Mousson, Journ. de Conch. 1865, p. 177; Schmeltz, Cat. Mus. Godeff. iii. p. 28; Pease, Proc. Zool. Soc. 1871, p. 477; Paetel, Cat. Conch. p. 114; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 348; Cox, Proc. Linn. Soc. New South Wales, vi. p. 617.

Pythia savaiensis, Mousson, Journ. de Conch. 1869, p. 345, 1870, p. 133; Pease, Proc. Zool. Soc. 1871, p. 477; Schmeltz, Cat. Mus. Godeff. v. p. 87; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 341; Cox, Proc. Linn. Soc. New South Wales, vi. p. 613; G. Nevill, Hand-list Moll. Mus. Calcutta, p. 223.

Not uncommon in forests near the sea-shore at Kioa Island. Dr. Gräffe obtained it at Ovalau, Samoa, and Tonga group. I gathered several hundred examples at Wallis Island (=Uvea or Uea), one of the latter group.

A solid, ovate, umbilicated (rarely imperforate) species, 21 to 28 millim. long, with the striation of *P. pollex*, and the lower parietal fold simple; the upper one is small and trilobed. Colour corneous or yellowish-horn colour mottled with chestnut, rarely uniform light or dark chestnut. Varices spotted with white, and the aperture is luteous. The palate is furnished with 4 or 5 teeth.

The small size, absence of bands, uniform shape, and the simple lower parietal fold will readily separate it from *P. pollex*.

Mousson's name *savaiensis* is derived from Savaii, one of the Samoa

Islands. He very correctly drops one *i*; and Pease, who retains both, spells it "*savaiiensis*." Both Schmeltz and Paetel erroneously quote it as "*savayensis*." All, however, refer to one and the same species.

4. Pythia lentiginosa, Garrett.

Pythia lentiginosa, Garrett, Amer. Journ. Conch. 1872, p. 220, pl. 19. fig. 4; Schmeltz, Cat. Mus. Godeff. v. p. 87; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 337; G. Nevill, Hand-list Mus. Calcutta, p. 222; Cox, Proc. Linn. Soc. New South Wales, vi. p. 604.

This species occurred to me in only *one* location, a small islet close to the east end of Taviuni, where it was found in abundance associated with *P. pollex*.

It is remarkably uniform in colour, and differs but little in shape and size. It is a solid, ovate or oblong-ovate shell, 21 to 29 millim. long, yellowish white, profusely spotted with small fulvous-brown maculations, and with a honey-yellow aperture. The varices, which are not very conspicuous, are spotted with white and chestnut, which on the sides of the body-whorl are elongated into stripes. The basal perforation varies from rimate to umbilicate. The lower parietal fold shows a very slight indication of an external groove.

5. Pythia perovata, Garrett.

Pythia perovata, Garrett, Amer. Journ. Conch. 1872, p. 221, pl. 19. fig. 5; Schmeltz, Cat. Mus. Godeff. v. p. 87; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 34; Cox, Proc. Linn. Soc. New South Wales, vi. p. 608.

I collected about 2000 specimens of this species on the margins of mangrove-swamps at Vuna Dawa on the north side of Natawa Bay, Vanua Levu, and at Na Viti Levu Bay in the N.E. part of Viti Levu. Examples taken at the latter location were larger than the Vuna Dawa shells.

This very distinct species is of an ovate or abbreviate-ovate shape, solid; spire short, base imperforate, sometimes rimate, more rarely perforated; longitudinally striated, the striæ straight and most conspicuous above. The dentation is white or tawny; the upper tooth on the parietal wall is vertical, elongate, crest-like, simple or very rarely with a slight inferior lobe projecting to the left. The lower fold is compressed and furnished with a small, short, tooth-like duplication. The columellar plait is obliquely twisted and continuous with the widely expanded peristome, which latter is simple above and slightly reflected below. Palate with four, rarely five teeth, two of which are the larger. Colour light to dark chestnut or reddish chestnut, rarely light yellowish-horn colour, frequently indistinctly mottled with a tint darker than the ground-colour, and very often with a blackish sutural band. Varices rarely spotted with whitish. Length 15 to 24 millim. The adults are very frequently eroded over the whole surface.

Genus Plecotrema, H. & A. Adams.

1. Plecotrema souverbiei, Montrouzier.

Plecotrema souverbiei, "Montrouzier," Souverbie, Journ. de Conch. 1862, p. 246, pl. 9. fig. 12; Gassies, Faune Nouv. Caléd. p. 67, pl. 6. fig. 23; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 343.

Plecotrema turrita, Garrett, Proc. Phil. Acad. Nat. Sci. 1873, p. 235, pl. 3. fig. 68.

Not uncommon under stones a little below high-water mark on the east end of Taviuni. It also inhabits New Caledonia.

This remarkable species is easily recognized by its ovate-conical form, scalariform spire, corneous or dull fulvous colour, subperforated and angulated base. The sculpture consists of numerous, small, crowded, granulated spiral ridges, with the intermediate grooves crossed by sublaminated striæ. There is a prominent crest-like varix just behind the peristome, which latter is acute, continuous, and slightly porrected. Parietal region with a superior nodiform tooth beneath, of which there is a simple acute plait. Columellar fold small and nearly transverse. Outer lip labiate within and bidentate. Length $4\frac{1}{2}$ millim.

Very closely allied to, if not identical with, *P. bella*, a Philippine species.

2. Plecotrema hirsuta, Garrett.

Plecotrema hirsuta, Garrett, Amer. Journ. Conch. 1872, p. 219, pl. 19. fig. 2; Schmeltz, Cat. Mus. Godeff. v. p. 87; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 348.

Abundant in the same station and locality as the preceding species.

An imperforated, solid, acutely-ovate, corneous species, with spiral rugose liræ, 16 to 18 on the body-whorl, garnished with short, deciduous, curved hair-like setæ. The intervening sulcations deep, narrower than the lirations, and crossed by sublaminated striæ. There is a stout obtuse varix just behind the peristome, and the dentation, excepting the lower parietal fold, which is bifid, does not differ from the preceding species. Length 5 to 7 millim.

3. Plecotrema octanfracta (Jonas).

Pedipes octanfracta, Jonas, Zeit. Malak. 1845, p. 160.

Plecotrema octanfracta, Jeckeli, Nachr. Malak. Ges. 1872, p. 65; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 346.

Plecotrema clausa, H. & A. Adams, Proc. Zool. Soc. 1853, p. 121; Gen. Moll. ii. p. 241; Pfeiffer, Syn. Auric. no. 101; Novit. Conch. i. p. 15, pl. 5. figs. 9–11; Mon. Auric. i. p. 103; Pease, Proc. Zool. Soc. 1871, pp. 459, 477; Paetel, Cat. Conch. p. 144; Schmeltz, Cat. Mus. Godeff. v. p. 87.

Plecotrema consobrina, Garrett, Proc. Phil. Acad. Nat. Sci. 1873, p. 236, pl. 3. fig. 69.

Not uncommon under stones a little below high-water mark at Kioa

and Taviuni. It also inhabits the Sandwich and Panmotu Islands, and I found it very abundant and gregarious at the Gambier Islands.

A small, solid, ovate species with the spiral liræ of *P. hirsuta*, but more numerous, smoother, more crowded, and the aperture is not so much contracted. The external varix is smaller, and the base of the shell is more rounded than in the latter species. Colour light brownish, sometimes corneous, usually with a faint pale zone beneath the suture, and the aperture is more or less tinged with brownish. The dentation is the same in both species. Length 3 to 5 millim.

Genus Cassidula, Férussac.

1. Cassidula intuscarinata, Mousson.

Auricula (*Cassidula*) *intuscarinata*, Mousson, Journ. de Conch. 1870, p. 132, pl. 7. fig. 9.

Cassidula intuscarinata, Schmeltz, Cat. Mus. Godeff. v. p. 88; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 353.

Occurs in profusion on the mud in mangrove-swamps at Viti Levu and Vanua Levu. I have received the same species from New Caledonia labelled *C. mustellina*.

This species, like nearly all the shells inhabiting swamps, is very frequently stained and more or less eroded. When in good condition it is of a brown or brownish-liver colour, sometimes olive-brown, with an obscure pale band on the subangulated shoulder. Rarely light fulvous-brown, with an indistinct light chestnut band between the shoulder and the sutural line. The base, aperture, and the peristome tawny flesh-colour, the latter with a stout external varix. The shape of the shell is subovate, with spiral incised lines, and the aperture is obauriform. The strongly labiated lip is deeply emarginated above. Upper parietal tooth small, nodiform, and the plait beneath is nearly transverse. Columellar fold slightly oblique. Length 14 to 20 millim.

2. Cassidula crassiuscula, Mousson.

Cassidula crassiuscula, Mousson, Journ. de Conch. 1869, p. 343, pl. 15. fig. 1; Paetel, Cat. Conch. p. 114; Pease, Proc. Zool. Soc. 1871, p. 477; Schmeltz, Cat. Mus. Godeff. v. p. 88; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 352.

Auricula (*Cassidula*) *crassiuscula*, Mousson, Journ. de Conch. 1871, p. 191.

Cassidula nucleus, Gassies (Martyn ?), Faune Nouv. Caléd. p. 71, pl. 3. fig. 9.

Like the preceding species, it occurs in profusion on the mud in mangrove-swamps, but is more generally diffused throughout the group. It also inhabits Tonga and the Samoa Islands. Mr. Layard, of New Caledonia, sent me specimens collected in that island, labelled "*Melampus nucleus*, Martyn."

It has the same shape and dentation as *C. intuscarinatus*, but is much more variable in colour, and in size ranges from 10 to 16

millim. long. It is of different shades of chestnut-brown, white, corneous, fulvous, frequently with from one to four pale transverse bands on the body-whorl, and more rarely with a sutural livid band. Aperture pale fulvous, brownish or white, and the lip light fulvous or white.

I am inclined to believe this species is diffused throughout the New Hebrides, Solomon Islands, and, perhaps, extends its range into the East Indies. I am sure Samoa is the eastern limit of the genus *Cassidula*; Martyn's *C. nucleus*, which is erroneously quoted as a Tahitian species, does not inhabit that group.

I am also strongly inclined to believe Mousson's *C. crassiuscula* is identical with his *C. sulculosa*, an East-Indian species.

3. Cassidula paludosa, Garrett.

Ophicardulus paludosus, Garrett, Amer. Journ. Conch. 1872, p. 220, pl. 19. fig. 3.

Cassidula paludosa, Paetel, Cat. Conch. p. 114.

Plecotrema paludosa, Schmeltz, Cat. Mus. Godeff. v. p. 87.

Melampus paludosus, Pfeiffer, Mon. Pneum. (Auric.) iv. p. 327.

Common in the mud in mangrove-swamps, and probably generally distributed in the group. I took a few examples at Upolu, one of the Samoa Islands.

A small, solid, ovate, whitish, yellow-corneous, or chestnut-brown species, with fine, spiral, incised, punctured lines and a carinated base. Spire convexly-conical, and more produced than in the preceding species. Aperture white, tawny, or fulvous, with the dentation of *C. crassiuscula*, with the addition, in old specimens, of a small denticle in the labial sinus. Length 8 to 10 millim.

Genus Auricula, Lamarck.

1. Auricula subula, Quoy & Gaimard.

Auricula subula, Quoy & Gaimard, Voy. Astrol. ii. p. 171, pl. 13. figs. 39 & 40; Deshayes, Lam. Hist. viii. p. 334; Küster, Auric. p. 53, pl. 8. figs. 9 & 10; Jay, Cat. Shells, 1850, p. 265; A. Adams & Reeve, Voy. Samarang, p. 55, pl. 14. fig. 15, with animal; Pfeiffer, Auric. no. 147; Mon. Auric. i. p. 141; Gassies, Faune Nouv. Caléd. p. 69; Paetel, Cat. Conch. p. 115.

Pythia subula, Beck, Ind. Moll. p. 104.

Ellobium subula, H. & A. Adams, Proc. Zool. Soc. 1853, p. 8; Gen. Moll. ii. p. 238, pl. 82. fig. 1.

Auricula elongata, "Parreyss," Küster, Auric. p. 53, pl. 8. figs. 6–8; Jay, Cat. Shells, 1850, p. 264; Pfeiffer, Auric. no. 146; Mon. Auric. i. p. 140; Morelet, Sér. Conch. p. 93; Mousson, Journ. de Conch. 1871, p. 18; Paetel, Cat. Conch. p. 115; Schmeltz, Cat. Mus. Godeff. v. p. 88.

Auricula buddii, Parreyss, MS.

Ellobium elongatum, H. & A. Adams, Proc. Zool. Soc. 1854, p. 8; Gen. Moll. ii. p. 237.

Ellobium oparicum, H. & A. Adams, Proc. Zool. Soc. 1854, p. 9 ; Gen. Moll. ii. p. 237.

Auricula oparica, Pfeiffer, Syn. Auric. no. 46 ; Novit. Conch. i. p. 28, pl. 7. figs. 14–16 ; Mon. Auric. i. p. 139.

Auriculus subula, Pfeiffer, Mon. Pneum. (Auric.) iv. p. 360.

Auriculus elongatus, Pfeiffer, *l. c.*

Auriculus oparicus, Pfeiffer, *l. c.*

A very abundant species, inhabiting the margins of mangrove-swamps, and widely diffused throughout the group. Likewise common to the Tonga and Samoa Islands, and generally distributed over Melanesia. It has also been found at different points in the East Indies ; and Morelet records it from Mauritius.

A small species, 9 to 16 millim. long, of a slender fusiform shape ; smooth, shining, longitudinally striated, acute, with a convexly-conical spire, very frequently truncated by erosion, and more or less lacerated at the suture. Body-whorl narrow, usually longer than the spire, attenuated or rounded at the base, rarely rimate. Aperture elongate, white, or light fulvous, sometimes livid, with a compressed subtransverse plait on the lower part of the parietal wall, and two small, oblique, approximating folds on the columella, the upper one sometimes evanescent. Peristome obtuse, in old specimens slightly sinuous above, and adnate next the suture. Colour white, beneath an epidermis which varies from pale olivaceous horn-colour to chestnut-black.

A careful comparison of the descriptions of *A. elongata* and *A. oparica* has convinced me that they do not differ from *A. subula*, which Quoy obtained at the New Hebrides. Pfeiffer, in his description of *A. elongata*, mentions only a single columellar fold, and quotes the Sandwich Islands, "Feejee," and one of the Philippines as habitat. It certainly does not live on the former group. Schmeltz cites one of the Caroline Islands and "Tahiti," the latter erroneous. *A. oparica*, which was described from specimens in Cuming's Museum, is assigned to "insula Opara (ins. Societatis)." There is no island of that name in the Society group ; but there is a very small island, about 600 miles south of Tahiti, called Rapa-Oparee, which from its small size and rugged surface is not likely to be the home of the marsh-loving *Auriculæ*.

2. Auricula semisculpta, H. & A. Adams.

Ellobium semisculptum, H. & A. Adams, Proc. Zool. Soc. 1854, p. 9 ; Gen. Moll. ii. p. 237.

Auricula semisculpta, Pfeiffer, Syn. Auric. no. 139 ; Mon. Auric. i. p. 136 ; Novit. Conch. i. p. 39, pl. 10. figs. 7–9 ; Gassies, Faune Nouv. Caléd. p. 70, pl. 3. fig. 11 ; Schmeltz, Cat. Mus. Godeff. v. p. 88.

Auriculus semisculptus, Pfeiffer, Mon. Pneum. (Auric.) iv. p. 359.

I found several hundred examples of this species in different parts of the group. They were *all* found buried in rotten bogs on

the margins of mangrove-swamps. I also took many in similar stations at Wallis Island and Samoa. I have received it from New Caledonia, and, undoubtedly, it ranges throughout Melanesia. The locality "Gambier Islands," usually assigned to this species, is decidedly erroneous. There are no swampy lands and not a single perennial stream in the group. Schmeltz is also wrong in citing Huahine, Society Islands, as habitat.

This species varies considerably in shape, thickness, and in size ranges from 12 to 30 millim. long. The surface is shining, longitudinally striated, and the upper portions of the whorls are sculptured by crowded spiral rows of minute granules, which, in large adults, sometimes cover the whole surface of the body-whorl. The lower part of the parietal region is armed with a prominent, compressed, oblique fold, and just beneath is a smaller and more vertical one on the columella. The peristome is rather strongly labiated and sinuous above. The shape of the shell varies from oblong-ovate to oblong-turreted, the spire is more or less produced, and the base imperforated. Colour white, beneath a fulvous-yellow or yellowish horn-coloured epidermis.

Genus Truncatella, Risso.

1. Truncatella valida, Pfeiffer.

Truncatella valida, Pfeiffer, Zeit. Malak. 1846, p. 182; Mon. Auric. (Appendix) i. p. 184; Jay, Cat. Shells, 1854, p. 253; Küster, Mon. p. 11, pl. 2. figs. 7, 8, 19–21, 23; H. & A. Adams, Gen. Moll. ii. p. 311; Martens, Ostas. Zool. ii. p. 262; Paetel, Cat. Conch. p. 118; Pease, Proc. Zool. Soc. 1871, p. 477.

Truncatella vitiana, Gould, Proc. Bost. Soc. Nat. Hist. 1847, p. 208; Expl. Exp., Shells, p. 109, fig. 126; Otia Conch. p. 40; H. & A. Adams, Gen. Moll. ii. p. 311; Pfeiffer, Mon. Pneum. ii. p. 6; Mousson, Journ. de Conch. 1869, p. 356, 1870, p. 195; Paetel, Cat. Conch. p. 118; Schmeltz, Cat. Mus. Godeff. v. p. 104.

Truncatella vitiacea, Mousson, Journ. de Conch. 1865, p. 185.

Taheitia vitiana, Pease, Proc. Zool. Soc. 1871, p. 477.

Truncatella conspicua, "Bronn," Pfeiffer, Mon. Auric. (Appendix) i. p. 184; Paetel, Cat. Conch. p. 118; Layard, Cat. Land & Fresh-water Shells N. Caled. p. 1.

This species occurs in abundance in all parts of the group, and lives just above high-water mark in sheltered places. It occurs also in the Samoa, Tonga, and Ellis group, and is diffused throughout Australasia and the East-India Islands.

It may be characterized by its solid texture, slightly tapering cylindrical form, white, luteous, corneous, or ruddy corneous colour, and $4\frac{1}{2}$ slightly convex persistent whorls. The sculpture consists of nearly erect, obtuse ribs (25 to 35) on the body-whorl, and the base is more or less distinctly carinated. The peristome is thick, slightly expanded and auriculated at the suture. The operculum is thin, convex, smooth, with an elastic lamina-like margin.

Length 6 to 8 millim.

I am inclined to believe that *T. pacifica*, Pease, from the Caroline Islands, is identical with *T. valida*.

2. Truncatella rustica, Mousson.

Truncatella rustica, Mousson, Journ. de Conch. 1865, pl. 14. fig. 8; Paetel, Cat. Conch. p. 118; Schmeltz, Cat. Mus. Godeff. v. p. 104; Pfeiffer, Mon. Pneum. iv. p. 14.

Truncatella costellifera, Pease, Proc. Zool. Soc. 1871, pp. 468, 477; Pfeiffer, Mon. Pneum. (Auric.) iv. p. 16.

I found a few examples of this species at Taviuni, associated with *T. vitiana*. It was also obtained at Wallis Island (="Uvea"), where Dr. Gräffe found the type specimens. Mr. Pease's *T. costellifera*, which Mr. Brazier obtained at Vavau, Tonga Islands, is undoubtedly the same as *T. rustica*.

It is smaller (6 to 7 millim. long), more slender, the aperture not so large, and the ribs less numerous (20 to 25), and the basal keel is more conspicuous than in *T. valida*, and is continuous with the large rib just behind the peristome, which gives the latter a duplicated appearance. The colour corneous or ruddy corneous.

3. Truncatella ceylanica, Pfeiffer.

Truncatella ceylanica, Pfeiffer, Proc. Zool. Soc. 1856; Mon. Auric. (Appendix) i. p. 186; H. Nevill, Enum. Pneum. Ceyl. 1871, p. 6; Tennent's Ceylon, i. p. 239.

Truncatella teres, Pfeiffer, Proc. Zool. Soc. 1856, p. 336; Mon. Auric. (Appendix) i. p. 188; Cox, Mon. Austr. Land-Shells, p. 92, pl. 15. figs. 9, 9*a*, 9*b*; Paetel, Cat. Conch. p. 118.

Truncatella semicostata, Montrouzier, Journ. de Conch. 1862, p. 243, pl. 9. fig. 10; Pfeiffer, Mon. Pneum. iii. p. 6; Gassies, Faune Nouv. Caléd. p. 73, pl. 8. fig. 2; Paetel, Cat. Conch. p. 118; Schmeltz, Cat. Mus. Godeff. v. p. 104.

Truncatella cerea, Gassies.

Truncatella nitida, Gassies.

We obtained many thousand specimens, in all stages of growth, near high-water mark at Ovalau Island.

This species may be distinguished by its rather thin shining texture and more or less evanescent riblets, which are either well developed on all the whorls, or entirely absent except at the sutures, where they are reduced to plicate crenulations. Sometimes the crenulations disappear, so that the shell is perfectly smooth and polished. Some examples have the upper whorls ribbed, and the lower one smooth or crenulated at the suture and base.

Having lately received from my esteemed correspondent, Mr. E. L. Layard, of New Caledonia, a lot of *Truncatella ceylanica* from Ceylon, together with *T. teres* from the Comoro Islands, and many examples of *T. semicostata* from New Caledonia, and after a critical comparison of the three species, I have failed to discover a single specific character to separate one from the other. Dr. Cox records *T. teres* from N.E. Australia.

Through the courtesy of the Rev. Montrouzier of New Caledonia,

I have been enabled to examine typical specimens of *T. cerea* and *T. nitida* labelled in Gassies's *own* handwriting, and do not hesitate to refer the former to the smooth crenulated and the latter to the smooth non-crenulated varieties of *T. ceylanica*.

4. Truncatella granum, Garrett.

Truncatella granum, Garrett, Amer. Journ. Conch. 1872, p. 225; Schmeltz, Cat. Mus. Godeff. v. p. 105; Pfeiffer, Mon. Pneum. iv. p. 16.

This small species occurred to my notice in one locality only, the N.E. end of Taviuni, where it was found abundant beneath loose stones a little below high-water mark.

Its small size ($4\frac{1}{2}$ to 5 millim. long), uniform cinereous colour, $4\frac{1}{2}$ persistent whorls, 20 to 25 riblets on the body-whorl, small ovate aperture, and conspicuous duplicated peristome will distinguish it from the preceding species.

5. Truncatella avenacea, sp. nov.

Shell small, rimate, cylindrical, corneous; ribs rather small, erect, rounded, about the same width as their interspaces, 35 to 40 on the last whorl; suture impressed; whorls persistent, $4\frac{1}{2}$, convex; base distinctly carinated; aperture small, vertical, oval, a little less than a fourth the length of the shell; peristome continuous, obtuse, slightly expanded, and duplicated by the continuation of the basal keel. Length 6, diam. $2\frac{1}{2}$ millim.

A few examples found associated with *T. vitiana* at Vanua Levu.

It more nearly resembles the strongly ribbed *T. semicostata* than any other species inhabiting the group; but may be distinguished from that species by its more numerous ribs, more convex whorls, smaller aperture, and more conspicuous basal keel and duplicated peristome.

Genus Taheitia, H. & A. Adams.

1. Taheitia funiculus (Mousson).

Truncatella funiculus, Mousson, Journ. de Conch. 1870, p. 171; Paetel, Cat. Conch. p. 117; Pfeiffer, Mon. Pneum. iv. p. 21.

This species was discovered by Dr. Gräffe in the interior of Viti Levu.

It is a slender, cylindrical, whitish horn-coloured species, with 6 persistent convex whorls and a deep suture; the ribs are sharp, rather remote, 12 to 16 in the body-whorl, all converging at the base. The aperture is small, vertical, semicircular. Peristome obtuse, expanded, continuous, and slightly porrected. Length 8, diam. 2 millim.

2. Taheitia turricula (Mousson).

Truncatella turricula, Mousson, Journ. de Conch. 1870, p. 196; Paetel, Cat. Conch. p. 117; Schmeltz, Cat. Mus. Godeff. v. p. 104; Pfeiffer, Mon. Pneum. iv. p. 20.

Inhabits Mango Island, where it was discovered by Dr. Gräffe. I do not know this species.

It is a long, slender, greyish-white species, with 5 persistent subconvex whorls and a deep suture; the riblets, of which there are 18 to 20 on the last whorl, are thin, sharp, and separated by rather wide interspaces. The vertical aperture is obtusely biangulately ovate, and the porrected peristome is continuous, expanded, and slightly reflected. Length 9 millim.

3. Taheitia arcasiana (Crosse).

Truncatella arcasiana, Crosse, Journ. de Conch. 1868, p. 177, 1870, p. 107, pl. 7. fig. 13; Mousson, Journ. de Conch. 1870, p. 196; Schmeltz, Cat. Mus. Godeff. v. p. 104; Pfeiffer, Mon. Pneum. iv. p. 20.

Truncatella alternans, Mousson, in Cat. Mus. Godeff. iv. p. 76.

This species (which is unknown to me) was found by Dr. Gräffe in the interior of Viti Levu.

Mr. Crosse says it is an elongated, cylindrically-turreted, chalky, dull whitish species, 9 millim. long, with remote riblets, which are sometimes evanescent on the middle of the whorls. The persistent 6 whorls are rather convex, the suture is impressed, and the aperture suboval. The peristome is continuous, porrected, and slightly expanded.

4. Taheitia scalariformis (Reeve).

Truncatella scalariformis, Reeve, Proc. Zool. Soc. 1842, p. 197; Conch. Syst. ii. pl. 182. fig. 6; Pfeiffer, Zeit. Malak. 1846, p. 186; Mon. Auric. i. (Appendix) p. 191; Jay, Cat. Shells, 1850, p. 252; Küster, Mon. p. 15; H. & A. Adams, Gen. Moll. ii. p. 31; Schmeltz, Cat. Mus. Godeff. v. p. 104.

Truncatella truncatula, var., Anton, Verz. Conch. p. 62.

Truncatella arctecostata, Mousson, Journ. de Conch. 1869, p. 68, pl. 5. fig. 4, 1870, p. 195; Paetel, Cat. Conch. p. 117; Schmeltz, Cat. Mus. Godeff. iv. p. 76; Pfeiffer, Mon. Pneum. iv. p. 19.

Taheitia scalariformis, Pease, Proc. Zool. Soc. 1871, pp. 468, 477; Journ. de Conch. 1871, p. 92; Martens & Langk. Don. Bismark. p. 60, pl. 4. fig. 1.

Prof. Mousson's original description of *T. arctecostata* was drawn up from specimens of *T. scalariformis* collected by me at Anaa, Paumotu Islands. The same, or a very closely allied, species was subsequently discovered by Dr. Gräffe on Viti Levu, and referred by Mousson to *T. arctecostata*. I have not seen any Viti specimens.

It is a thin, subpellucid, cylindrically-turreted, yellowish-white or corneous species, with 4 or 5 persistent convex whorls. The riblets are numerous (38 to 40 in the last whorl), very slightly arched, and converging at the base. The aperture is vertical, small, broadly ovate, and the peristome is thin, continuous, and expanded. Operculum typical. Length 6 millim.

Genus Diplommatina, Benson.

1. Diplommatina martensi, H. Adams.

Diplommatina (Diancta) martensi, H. Adams, Proc. Zool. Soc.

1866, p. 446, pl. 38. fig. 11; Mousson, Journ. de Conch. 1870, p. 186; Brazier, Journ. de Conch. 1870, p. 84; Schmeltz, Cat. Mus. Godeff. v. p. 102; Pfeiffer, Mon. Pneum. iv. p. 85.

Diplommatina paradoxa, Crosse, Journ. de Conch. 1857, p 449.

Diplommatina australiæ, Schmeltz (not of Benson), Cat. Mus. Godeff. iii. p. 30; Paetel, Cat. Conch. p. 118.

Diplommatina macrostoma, "MSS.," Schmeltz, Cat. Mus. Godeff. iv. p. 75; Paetel, Cat. Conch. p. 118.

Diplommatina distorta, "MSS.," Schmeltz, *l. c.* p. 75; Paetel, *l. c.* p. 118.

This species inhabits Viti Levu and Ovalau.

It may be distinguished by its sinistral, distorted, ovate-conical form, cinereous or luteous horn-colour, $5\frac{1}{2}$ swollen whorls, the last one smaller than the preceding and ascending. The sculpture consists of fine, crowded, oblique, lamelliform striæ, which become larger and more remote on the body-whorl. Aperture large, subvertical, and nearly circular. The peristome is continuous, expanded, and in adults the parietal wall is subplicate. Length 3 millim.

2. Diplommatina pomatiæformis, Mousson.

Diplommatina (*Diancta*) *pomatiæformis*, Mousson, Journ. de Conch. 1870, p. 180, pl. 8. fig. 2; Pfeiffer, Mon. Pneum. iv. p. 81.

Discovered by Dr. Gräffe in the central portion of Viti Levu.

A sinistral, inflated, costate-striated, cinereous species, with $6\frac{1}{2}$ rounded whorls, the last one smaller than the penultimate, scarcely ascending, and the striæ coarser and more distant than on the preceding whorls. The vertical aperture is circular, pale luteous, and the peristome is slightly reflected and duplicated. Length 5 millim.

3. Diplommatina subregularis, Mousson.

Diplommatina (*Diancta*) *subregularis*, Mousson, Journ. de Conch. 1870, p. 181, pl. 8. fig. 3; Pfeiffer, Mon. Pneum. iv. p. 81.

This species inhabits "Nagara," on the south coast of Viti Levu, where it was found by Dr. Gräffe.

A sinistral, yellowish horn-coloured species, shaped like the preceding, but not so much inflated and with the spire more regular. The sculpture consists of distant acute striæ. Whorls 7, convex, the penultimate somewhat inflated, the last one small and ascending. The vertical aperture is quadrately circular, and the slightly expanded peristome is subduplicated. Length 3 millim.

4. Diplommatina ascendens, Mousson.

Diplommatina (*Diancta*) *ascendens*, Mousson, Journ. de Conch. 1870, p. 184, pl. 8. fig. 5; Pfeiffer, Mon. Pneum. iv. p. 82.

Dr. Gräffe discovered this species on the island of Viti Levu.

It is a sinistral species about $3\frac{1}{2}$ millim. long, of a flesh-white colour, acutely ovate form, with distant lamelliform riblets and rather deep suture. Whorls $5\frac{1}{2}$, convex, rapidly increasing, the last one smaller than the penultimate and ascending. The rather large aperture is somewhat quadrate in shape and the peristome is

expanded, duplicated, slightly sinuated, and the columella is obtusely nodulous.

5. Diplommatina godeffroyana, Mousson.

Diplommatina (Diancta) godeffroyana, Mousson, Journ. de Conch. 1870, p. 182, pl. 8. fig. 4; Paetel, Cat. Conch. p. 118; Schmeltz, Cat. Mus. Godeff. v. p. 102; Pfeiffer, Mon. Pneum. iv. p. 82.

Also discovered by Dr. Gräffe on the southern portion of Viti Levu.

It is described as a sinistral, ovate, inflated, whitish horn-coloured species, with distant lamina-like striæ, 6 whorls, the antepenultimate larger than the penultimate, and the latter larger than the body-whorl, which slightly ascends the preceding one. The subvertical aperture is circular; the peristome is acute, shortly expanded, and slightly duplicated. Length $3\frac{1}{2}$ millim.

6. Diplommatina tuberosa, Mousson.

Diplommatina (Diancta) tuberosa, Mousson, Journ. de Conch. 1870, p. 185; Paetel, Cat. Conch. p. 118; Schmeltz, Cat. Mus. Godeff. v. p. 102; Pfeiffer, Mon. Pneum. iv. p. 83.

This is another of Dr. Gräffe's newly discovered species, which he found at Vaini Loba, on the south part of Viti Levu.

It is described as a sinistral, rather thin, elongate-ovate, pale horn-coloured species, with distant lamelliform riblets, 6 rounded whorls, the penultimate retracted and compressed in front, and the sides inflated. The last whorl is small, attenuated, and slightly ascending. The aperture is subcircular, and the peristome is slightly reflexed. Length 3–4 millim.

7. Diplommatina quadrata, Mousson.

Diplommatina (Diancta) quadrata, Mousson, Journ. de Conch. 1870, p. 187, pl. 8. fig. 1; Pfeiffer, Mon. Pneum. iv. p. 83.

Also found by Dr. Gräffe at Viti Levu.

A sinistral, ovate, pale-yellowish species, with crowded costulate striæ and convexly conical spire. Whorls 5, rapidly increasing, convex, the fourth one subinflated, the penultimate swollen on the back and retracted on the front, the last one attenuated, compressed at the base, and rapidly ascending. The subquadrate aperture is subpatulous, and the peristome is expanded. Length $4\frac{1}{2}$ millim.

8. Diplommatina taviensis, Liardet.

Diplommatina taviensis, Liardet, Proc. Zool. Soc. 1876, p. 101, pl. 5. figs. 9, 9*a*.

"Shell with the penultimate whorl contracted in front, leaving the previous one and lip of the aperture joining regularly costated; lip double; aperture circular and entire."

"Animal with two tentacles, short and cylindrical, with an active arched motion, as in *Helicina*. Eyes situated at the base of the tentacles inside."

"*Hab.* Taviuni, Fiji." (*Liardet.*)

Genus Moussonia, Semper.

1. Moussonia fuscula, Mousson.

Diplommatina (Moussonia) fuscula, Mousson, Journ. de Conch. 1870, p. 188, pl. 8. fig. 9 ; Pfeiffer, Mon. Pneum. iv. p. 93.

Moussonia fuscula, Paetel, Cat. Conch. p. 102.

The type was found by Dr. Gräffe on Oneata, one of the Windward Islands. Prof. Mousson mentions a var. *vitiana* from Viti Levu.

It is a minute, dextral, abbreviately turreted species of a brownish horn-colour, with fine striæ and 7 rounded whorls, of which the penultimate is the larger. The body-whorl is rather slender, rounded, and ascending. The aperture is circular, and the columella bears an obtuse plait or tooth. Peristome expanded. Length 2 millim.

Genus Ostodes, Gould.

1. Ostodes diatretus (Gould).

Cyclostoma diatretum, Gould, Proc. Bost. Soc. Nat. Hist. 1847, p. 205 ; Expl. Exp., Shells, p. 105, fig. 124.

Cyclotus diatretus, Pfeiffer, Consp. Cyclos. no 22 ; Mon. Pneum. i. p. 33 ; Gray, Cat. Phan. p. 18.

Cyclophorus (Ostodes) diatretus, var. *intercostata,* Mousson, Journ. de Conch. 1870, p. 179.

Dr. Gould's type specimens of this rare species were found on the west end of Vanua Levu. I obtained two dead specimens at Vanua Balavo, one of the Windward Islands, where Dr. Gräffe also found a single dead example, and one on Oneata, which Prof. Mousson characterized as var. *intercostata.*

This species is readily distinguished by its depressed form, wide open umbilicus, rude spiral, unequal, elevated lines, whitish horn-colour, rounded aperture, and simple peristome. Diam. 12 millim.

It is very closely related to the New-Caledonian *O. bocageanus,* but is smaller and more depressed.

Whilst searching in the mountains on the west end of Vanua Levu I found a very much weathered *Ostodes* twice the size of Gould's species, and subsequently found a similar specimen on the beach at Kioa Island. The specimens are in the Museum Godeffroy in Hamburg. It is undoubtedly an undescribed species.

2. Ostodes liberatus, Mousson.

Ostodes liberatus, Mousson, MS., Mus. Godeffroy, 1885.

Shell widely umbilicated, depressed, whitish horn-colour ; spire slightly elevated ; apex prominent ; suture deeply impressed ; whorls 4, convex, transversely rudely striated, undulated, and sculptured with numerous elevated spiral lines, larger, more prominent, and crenulated on and above the rounded periphery ; umbilicus very wide, showing all the volutions to the apex ; aperture circular, nearly vertical ; peristome thin, continuous, straight.

Major diam. 10, height 4 millim.

Viti Levu.

I received four examples of this singular species from the Museum Godeffroy. One specimen has the last whorl separated from the penultimate a distance of 4 millim. It may be distinguished by its depressed form, undulated whorls, and crenulated spiral lines.

3. Ostodes strictus, Mousson.

Ostodes strictus, Mousson, MS., Museum Godeffroy, 1885.

Shell umbilicated, depressed, turbinate, solid, rugose, decorticated, cinereous, sometimes with a ruddy tinge on the last whorl; spire depressedly conoid, apex exserted; suture impressed; whorls 5, convex, transversely rugosely wrinkled, closely lineated with spiral elevated lines, becoming evanescent on the rounded body-whorl; umbilicus wide, freely exhibiting all the whorls, spirally lineated with raised lines, and the margins slightly angulated; aperture oblique, subcircular; peristome straight, simple, nearly continuous, briefly joined to the body-whorl.

Major diam. 13, height 7 millim.

Vatu Lale.

Three examples received from the Godeffroy Museum. It is very closely related to Gould's *O. strigatus*, a Samoa species, and, excepting in size, can scarcely be distinguished from the New-Caledonian *O. bocageanus*.

Genus Pupina, Vignard.

1. Pupina vitiensis, Garrett.

Pupina vitiensis, Garrett, Proc. Phil. Acad. Nat. Sci. 1873, p. 233, pl. 3. fig. 62; Schmeltz, Cat. Mus. Godeff. vi. pp. 83, 104.

A somewhat rare species, found beneath damp decaying leaves at Gomea Island. Mr. Liardet records a species of *Pupina* as occurring on Taviuni, which is probably the same as the Gomea shell. Schmeltz erroneously assigns it to Kandavu.

A brilliant, highly polished, oblong, whitish corneous species, with slightly swollen spire, the left side more convex than the right, and the columella with a tongue-like projection forming a deep notch. An obtuse plait on the upper part of the parietal wall. Length 7 millim.

Genus Omphalotropis, Pfeiffer.

1. Omphalotropis moussoni, Pease.

Omphalotropis ovata, Mousson (not of Pease), Journ. de Conch. 1865, p. 198, pl. 14. fig. 10; Paetel, Cat. Conch. p. 124; Schmeltz, Cat. Mus. Godeff. iv. p. 75.

Omphalotropis moussoni, Pease, Journ. de Conch. 1869, p. 147; Schmeltz, Cat. Mus. Godeff. v. p. 101.

Realia (*Omphalotropis*) *moussoni*, Mousson, Journ. de Conch. 1870, p. 194, 1871, p. 27; Pfeiffer, Mon. Pneum. iv. p. 224.

I found a few examples of this species at Vanua Balavo, where Dr. Gräffe discovered the type specimens. The Doctor subsequently found it on Viti Levu, Ticombia, and at Tongatabu, one of

the Tonga group. All the species of this genus live beneath decaying vegetation.

A smooth, ovate-ventricose, yellowish horn-coloured species, with two faint transverse zones, and six subinflated whorls, the last one perforated and slightly keeled close to the perforation. Length $3\frac{1}{2}$ millim.

2. Omphalotropis parva, Mousson.

Omphalotropis parva, Mousson, Journ. de Conch. 1865, p. 199; Pease, Journ. de Conch. 1869, p. 147; Paetel, Cat. Conch. p. 124; Schmeltz, Cat. Mus. Godeff. v. p. 101.

Realia (*Omphalotropis*) *parva*, Mousson, Journ. de Conch. 1871, p. 28; Pfeiffer, Mon. Pneum. iv. p. 224.

Realia lævis, Baird, in Brenchley's Cruise of Curaçoa (ex Schmeltz, in C. M. G. v. p. 101).

Omphalotropis vitiensis, Liardet, Proc. Zool. Soc. 1876, p. 101, pl. 5. figs. 11, 11 *a*.

This small species is not only generally diffused throughout the group, but occurs also in the Tonga and Ellis group of islands. Dr. Baird gives "Samoa" as habitat; neither Gräffe nor myself detected it in that group.

A small, smooth, ovate-conical species, $4\frac{1}{2}$ millim. long, of a pale corneous, yellowish, or violaceous horn-colour, with 6 convex whorls, and a strong basal keel contiguous to the perforation.

3. Omphalotropis ingens, Mousson.

Realia (*Omphalotropis*) *ingens*, Mousson, Journ. de Conch. 1870, p. 189; Pfeiffer, Mon. Pneum. iv. p. 227.

This species was found by Dr. Gräffe in Oneata, where it occurred in a semi-fossil condition.

An acutely-ovate species, with longitudinal riblets and 7 flattened whorls, the last with a basal filiform keel. Length 7 millim.

4. Omphalotropis longula, Mousson.

Realia (*Omphalotropis*) *longula*, Mousson, Journ. de Conch. 1870, p. 193; Pfeiffer, Mon. Pneum. iv. p. 233.

Omphalotropis longula, Paetel, Cat. Conch. p. 124.

Inhabits Ticombia, one of the Windward Islands.

This species may be characterized by its smooth, rather thin, subpellucid, conically-turreted form, 7 slightly convex whorls, the last one rounded and filocarinate at the base. The aperture is oval, and the peristome slightly expanded. Length 6 millim.

5. Omphalotropis circumlineata, Mousson.

Realia (*Omphalotropis*) *circumlineata*, Mousson, Journ. de Conch. 1870, p. 191, pl. 7. fig. 11; Pfeiffer, Mon. Pneum. iv. p. 230.

Omphalotropis circumlineata, Paetel, Cat. Conch. p. 124.

Garrettia ? circumlineata, Schmeltz, Cat. Mus. Godeff. v. p. 100.

This interesting species was discovered by Dr. Gräffe on Vanua Balavo and Viti Levu.

A thin, turbinate, conical, reddish horn-coloured species, with 6 angulate whorls which are spirally lineated with elevated lines, two on the body and one on the whorls of the spire so much larger than the others as to give the former a biangular, and the latter an angular outline. The basal keel is small. Length $5\frac{1}{2}$ millim.

Mousson's figure is not very characteristic. The whorls are too much rounded, and do not exhibit the large spiral lines which modify the outlines of the shell.

Mr. Schmeltz refers it with a doubt to the genus *Garrettia* (=*Diadema*, Pease). An examination of the operculum would decide the question of its generic rank.

6. Omphalotropis costulata, Mousson.

Realia (*Omphalotropis*) *costulata*, Mousson, Journ. de Conch. 1870, p. 190, pl. 7. fig. 10; Pfeiffer, Mon. Pneum. iv. p. 233.

Omphalotropis costulata, Paetel, Cat. Conch. p. 124.

A few examples found beneath dead leaves at Vanua Balavo, where Dr. Gräffe obtained the type specimens.

A small, ovate, whitish horn-coloured species, $5\frac{1}{2}$ millim. long, with 6 convex whorls, and furnished with small, longitudinal, crowded riblets. The perforated base has a well-defined keel, and there is sometimes faint indication of a peripheral keel.

7. Omphalotropis subsoluta, Mousson.

Realia (*Omphalotropis*) *subsoluta*, Mousson, Journ. de Conch. 1870, p. 192, pl. 7. fig. 12; Pfeiffer, Mon. Pneum. iv. p. 219.

Omphalotropis subsoluta, Paetel, Cat. Conch. p. 124; Schmeltz, Cat. Mus. Godeff. v. p. 100.

Discovered by Dr. Gräffe at Oneata, one of the Windward Islands.

A smooth, pale horn-coloured, turreted species, with $7\frac{1}{2}$ convex whorls; the last one, which is slightly separated from the penultimate, is usually furnished with a filiform carina a little below the periphery. A similar remote keel circumscribes the basal perforation. The vertical aperture is about one fifth the length of the shell. Peristome porrected, continuous, and slightly patulous at the base. Length 10 millim.

8. Omphalotropis zebriolata, Mousson.

Omphalotropis zebriolata, Mousson, Journ. de Conch. 1865, p. 181, pl. 14. fig. 11, 1870, p. 193, 1873, p. 108; Pease, Journ. de Conch. 1869, p. 145; Proc. Zool. Soc. 1871, p. 476; Paetel, Cat. Conch. p. 124; Schmeltz, Cat. Mus. Godeff. v. p. 101.

Realia (*Omphalotropis*) *zebriolata*, Mousson, Journ. de Conch. 1870, p. 193, 1871, p. 27; Pfeiffer, Mon. Pneum. iv. p. 225.

Omphalotropis perforata, Mousson, Journ. de Conch. 1865, p. 182, pl. 14. fig. 12; Pease, Journ. de Conch. 1869, p. 145; Proc. Zool. Soc. 1871, p. 476; Paetel, Cat. Conch. p. 124; Schmeltz, Cat. Mus. Godeff. v. p. 101.

Realia (*Omphalotropis*) *perforata*, Mousson, Journ. de Conch. 1871, p. 27; Pfeiffer, Mon. Pneum. iv. p. 222.

The type specimens of *O. zebriolata* and *O. perforata* were found by Dr. Gräffe at "Uvea" or Wallis Island, one of the northern islands of the Tonga group. Having personally collected hundreds of examples of both forms in the same locality, and as they gradually intergrade, I have united the two species. Dr. Gräffe also detected it on the neighbouring island of Futuna and on the low coral-islands of Ellis group. He likewise obtained the form *O. zebriolata* at Kanathia, Viti Islands. Mr. Pease wrongly assigns it to Samoa.

It may be distinguished by its ovate-conical form, smooth surface, fissured base, and variable colour—rose-red, pale luteous, violaceous brown, often pale banded at the periphery; sometimes with pale dots or longitudinal flexuous or zigzag lines. The basal keel is contiguous to the umbilical fissure. The pyriform aperture is usually concolor and the glazed parietal wall is frequently reddish brown. Length 5 to 7 millim.

It is shaped like the well-known *O. huahinensis*.

9. Omphalotropis rosea (Gould).

Cyclostoma roseum, Gould, Proc. Bost. Soc. Nat. Hist. 1847, p. 205; Expl. Exp., Shells, p. 105, fig. 121; Petit, Journ. de Conch. 1850, p. 47.

Omphalotropis rosea, Pfeiffer, Proc. Zool. Soc. 1854, p. 307; Consp. Cyclos. no. 47; Mon. Pneum. i. p. 308, iii. p. 176; H. & A. Adams, Gen. Moll. ii. p. 300.

Hydrocena rosea, Pfeiffer, Mon. Pneum. ii. p. 162.

Assiminea rosea, Martens, Ann. & Mag. Nat. Hist. 1866, xvii. p. 206.

Through the kindness of Mr. E. L. Layard, I have received an adolescent example of Gould's *O. rosea*; but, unfortunately, the kind donor cannot give me any information in regard to the exact locality except the comprehensive one "Fiji." I am inclined to believe it inhabits the small Windward Islands.

It may be distinguished by its large size, elongate-conical shape, rather solid texture, 6–7 whorls, and rose or luteous horn-colour. The conspicuous basal keel is close to the slightly perforated umbilicus. Length 8–9, diam. $4\frac{1}{2}$–5 millim.

10. Omphalotropis bifilaris, Mousson.

Omphalotropis bifilaris, Mousson, Journ. de Conch. 1865, p. 183; Pease, Journ. de Conch. 1869, p. 146; Proc. Zool. Soc. 1871, p. 476; Paetel, Cat. Conch. p. 124; Schmeltz, Cat. Mus. Godeff. v. p. 101.

Realia (*Omphalotropis*) *bifilaris*, Mousson, Journ. de Conch. 1869, p. 353, 1870, p. 194 (var. *angusta*), 1871, p. 29; Pfeiffer, Mon. Pneum. iv. p. 232.

Obtained by Dr. Gräffe at Kanathia, and the var. *angusta* in the interior of Viti Levu. The latter has a smaller basal fissure, and the

two carinations are evanescent. It is probably a distiuct species. The type is also distributed throughout the group, and occurs at Wallis Island.

This species may be recognized by its conical form, pale horn-colour beneath a light brownish epidermis, 6 convex whorls, incised suture, and filocarinate periphery. The basal perforation is margined by a rather distant keel. Length 6 millim.

11. Omphalotropis layardiana, sp. nov.

Realea (*Omphalotropis*) *rosea*, Mousson (not of Gould), Journ. de Conch. 1870, p. 192.

Omphalotropis bythinæformis, "MSS.," Paetel, Cat. Conch. p. 124 (ex Schmeltz in Cat. Mus. Godeff. iv. p. 74).

I obtained several specimens of this species at Vanua Balavo, one of the Windward Islauds. It may be described as follows :—

Shell umbilicated, rather solid, ovate-conic, smooth, scarcely shining, uniform corneous ; spire rather short, convexly-conical, apex obtuse ; suture slightly incised ; whorls 6–7, convex, narrowly tabulated, last one rounded ; umbilicus large ; basal keel large, and distant from the umbilical opening ; aperture abbreviately ovate, angular posteriorly and rounded in front ; peristome obtuse, margins nearly or quite continuous.

Length 6, diam. 4 millim.

It differs from *O. rosea* in its smaller size, more abbreviate form, more swollen whorls, large umbilicus, and remote keel.

Genus Lagocheilus, Blanford.

1. Lagocheilus hispidus, Liardet.

Lagocheilus hispidus, Liardet, Proc. Zool. Soc. 1876, p. 101, pl. 5. figs. 10, 10*a*.

"Shell small, bulimoid, hispid, of a brown colour ; whorls 5½, spirally costate : aperture circular.

"*Hab.* Gomia, Fiji." (*Liardet.*)

The existence of this East-Indian genus in the Viti group is remarkable. So far as known, it has not been detected in any other part of the Pacific.

Genus Helicina, Lamarck.

1. Helicina tectiformis, Mousson.

Helicina tectiformis, Mousson, Journ. de Conch. 1870, p. 199, pl. 8. fig. 7 ; Paetel, Cat. Conch. p. 126 ; (*Trochatella*) Brazier, Proc. Zool. Soc. 1871, p. 322 ; Schmeltz, Cat. Mus. Godeff. v. p. 98 ; Pfeiffer, Mon. Pneum. iv. p. 250.

Helicina mangoensis, Sowerby, Proc. Zool. Soc. 1870, p. 250.

This fine species appears to be peculiar to the small island of Mango, where it is very abundant on coralline rocks.

A depressedly-conical, acutely carinated species of a uniform white colour, with a sulphur-yellow spire ; frequently greyish, more or less

tinged with red. The sculpture consists of rather coarse, elevated, oblique striæ of growth, and closely-set spiral raised lines. The very oblique aperture is subtriangular, and the obtuse peristome is more or less expanded. There are 5 flat whorls, the last one with a prominent compressed acute keel. Diam. 12 millim.

2. Helicina semperi, Mousson.

Helicina semperi, Mousson, Journ. de Conch. 1870, p. 201, pl. 8. fig. 8; Paetel, Cat. Conch. p. 126; Schmeltz, Cat. Mus. Godeff. v. p. 98 (as of Gräffe); Pfeiffer, Mon. Pneum. iv. p. 278.

Obtained by Dr. Gräffe at Oneata.

A solid, smooth, somewhat lenticular, shining species with five flattened whorls, the last one rounded at the periphery, and the colour variable—white, yellow, reddish, frequently with reddish zigzag strigations. Peristome obtusely thickened, and the basal callus white. Diam. 10 millim.

3. Helicina interna, Mousson.

Helicina interna, Mousson, Journ. de Conch. 1870, p. 201, pl. 8. fig. 6; 1871, p. 24; Paetel, Cat. Conch. p. 125; Schmeltz, Cat. Mus. Godeff. v. p. 99; Pfeiffer, Mon. Pneum. iv. p. 248.

Found by Dr. Gräffe in the interior of Viti Levu and at Mango Island. It is also recorded from the Tonga group.

A turbinately-conical species of a uniform white or yellowish colour, with or without a spiral reddish-brown zone, and regular conical spire. Whorls 5, slightly convex, the last one rounded or obtusely angulated. Peristome acute. Diam. 9 millim.

4. Helicina gomeaensis, Garrett.

Helicina gomeaensis, Garrett, Proc. Phil. Acad. Nat. Sci. 1873, p. 233, pl. 3. fig. 13.

On the foliage of bushes at Gomea Island.

A depressedly trochiform, somewhat shining species, with spiral impressed striæ. Colour light straw-yellow, rarely with two brownish-red zones. Whorls 5, somewhat convex, last one slightly angular on the periphery. The white peristome is broadly expanded. Diam. 10 millim.

5. Helicina pallida, Gould.

Helicina pallida, Gould, Proc. Bost. Soc. Nat. Hist. 1847, p. 202; Expl. Exp., Shells, p. 96, fig. 113; Pfeiffer, Mon. Pneum. i. p. 396; Gray, Cat. Phan. p. 290; (*Pachystoma*) H. & A. Adams, Gen. Moll. ii. p. 303; Mousson, Journ. de Conch. 1865, p. 197, 1870, p. 200; Paetel, Cat. Conch. p. 125; Schmeltz, Cat. Mus. Godeff. v. p. 74.

I found a few examples of this species at Vanua Levu, Kioa, and Vanua Balavo. On foliage.

A cinereous or pale yellowish-white species, more depressed than the preceding one, the whorls flatter, the last one angular, the

spiral lines more indistinct, and the periphery with a compressed keel. The peristome is thinner and not so much expanded. Diam. 9 millim.

6. Helicina beryllina, Gould.

Helicina beryllina, Gould, Proc. Bost. Soc. Nat. Hist. 1847, p. 202 ; Expl. Exp., Shells, p. 95, fig. 111 ; Pfeiffer, Mon. Pneum. i. p. 354 ; Gray, Cat. Phan. p. 256 ; (*Idesa*) H. & A. Adams, Gen. Moll. ii. p. 304 ; Mousson, Journ. de Conch. 1865, p. 197, 1869, p. 357 (var. *flavida*), 1870, p. 200 ; Paetel, Cat. Conch. p. 125 ; Pease, Proc. Zool. Soc. 1871, p. 476 ; Schmeltz, Cat. Mus. Godeff. v. p. 98.

I obtained numerous examples of this species at Vanua Balavo, where it occurs on the trunks of trees. Dr. Gräffe found it at Kanathia and Oneata. Prof. Mousson has described the var. *flavida* from Samoa.

About the same size but thinner than *H. semperi*, and the spire is more conical, and the last whorl more depressed, so much so as to give the periphery an obtusely angular appearance. The peristome is thin. Colour white or pale greenish yellow, frequently with a dorsal spiral red zone ; basal callus greenish yellow.

7. Helicina fulgora, Gould.

Helicina fulgora, Gould, Proc. Bost. Soc. Nat. Hist. 1847, p. 201 ; Expl. Exp., Shells, p. 97, fig. 106 ; Pfeiffer, Mon. Pneum. i. p. 401 ; Gray, Cat. Phan. p. 293 ; H. & A. Adams, Gen. Moll. ii. p. 302 ; Mousson, Journ. de Conch. 1865, p. 178, 1869, p. 356, 1870, p. 198 (var. *expansa*), 1871, p. 25 (var. *diminuta*) ; Pease, Proc. Zool. Soc. 1871, p. 476 ; Paetel, Cat. Conch. p. 125 ; Schmeltz, Cat. Mus. Godeff. v. p. 98.

Dr. Gould's type specimens were obtained at Manna and Upolu, Samoa Islands. Mousson's variety *expansa* was found by Dr. Gräffe at Kanathia and Viti Levu. He also described the small var. *diminuta* from the Tonga Islands. Pfeiffer erroneously cites the Sandwich group as one of its localities.

This species, which lives on the ground in forests, may be distinguished by its thin, smooth, shining shell, convexly conoid spire, angular and conspicuously carinated body-whorl. The peristome is thin and expanded, forming an angle at the point of union with the columella. Colour pale corneous, white, or light sulphur-yellow, with longitudinal flexuous reddish or white narrow stripes. Diam. 4 to 9 millim.

8. Helicina musiva, Gould.

Helicina musiva, Gould, Proc. Bost. Soc. Nat. Hist. 1847, p. 201 ; Expl. Exp., Shells, p. 98, fig. 107 ; Pfeiffer, Mon. Pneum. i. p. 368 ; Gray, Cat. Phan. p. 259 ; H. & A. Adams, Gen. Moll. ii. p. 302 ; Mousson, Journ. de Conch. 1865, p. 178 (var. *uveana*), 1869, p. 357, 1870, p. 202 (var. *vitiana* et *subcarinata*), 1871,

p. 25, 1873, p. 107 (var. *rotundata*); Pease, Proc. Zool. Soc. 1871, p. 476; Paetel, Cat. Conch. p. 125 (*musica* in err.).

This variable species is abundant beneath decaying vegetation in the lowlands near the sea-shore, and is generally diffused throughout the group. It is also common in similar stations in the Tonga and Samoa Islands. Prof. Mousson's var. *rotundata* was obtained at the low coral-islands of the Ellis group.

The shape varies from depressed globose to sublenticular, and in size it varies from 3 to 5 millim. in diameter. The usual colour is white, corneous, or pale yellowish horn-colour, with radiating reddish-chestnut, more or less zigzagged or undulating stripes; it is rarely unicolor, and sometimes light chestnut. The periphery is rounded or subangulated, and the peristome slightly expanded.

H. oceanica, Pease, inhabiting the Kingsmill group, is probably a variety of *H. musiva*.

9. Helicina articulata, Pfeiffer.

Helicina articulata, Pfeiffer, Proc. Zool. Soc. 1854, p. 53; Mon. Pneum. ii. p. 191; Malak. Blat. 1854, p. 103.

A few examples found beneath decaying leaves near the sea-shore, on the west end of Vanua Levu.

Pfeiffer mentions "Tanna, New Hebrides," as the habitat of *H. articulata*.

Very closely related to the depressed subangulated forms of *H. musiva*, and the colour and markings are nearly or quite similar in the two species. The two articulated white and chestnut bands at the suture and periphery are not constant. The filocarinated body-whorl is its most prominent character. Diam. 5–6 millim.

10. Helicina pohliana, sp. nov.

Helicina miniata, "Lesson" (not of Lesson in Voy. Coquille), Museum Godeffroy, 1885.

Shell solid, depressedly-conoid, smooth, shining, fulvous or luteous, with very faint oblique striæ and distant irregular microscopical impressed spiral lines; spire convexly conoid; whorls 5, flatly convex, last one obtusely carinate; keel white, compressed beneath; aperture small, diagonal, semioval; peristome very thick, labiate within; basal callus white or pale yellowish.

Viti Levu.

I received this species from the Museum Godeffroy, labelled "*H. miniata*, Lesson." Lesson's species is peculiar to the island of Bolabola, one of the Society group.

Its solid texture, yellow colour, obtuse white keel, and thick obtuse peristome will readily distinguish it from any other Viti species.

11. Helicina incisa, Mousson.

Helicina incisa, Mousson, MS., Museum Godeffroy, 1885.

Shell minute, depressed-conoid, very faintly striated by lines of

growth, and spirally lineated with fine impressed lines; colour yellowish, corneous, with or without radiating reddish spots and bands; spire conoid; suture linearly impressed; whorls $4\frac{1}{2}$–5, flatly convex, slowly and regularly increasing, the last one depressed, subangulated on the periphery; base convex; aperture oblique, lunately oval; peristome expanded, slightly obtuse.

Diam. 4 millim.

Ono Island.

Several examples received from the Museum Godeffroy. Possibly only a variety of *H. musiva* with fine spiral impressed lines.

Genus Georissa, Blanford.

1. Georissa juvenilis (Mousson).

Diancta juvenilis, Mousson, MS., Mus. Godeffroy, 1885.

"Viti Levu."

Shell imperforate, ovate-conical, rather solid, corneous; spire conical, apex obtuse; suture deeply impressed; whorls 5, strongly convex, longitudinally obliquely plicately ribbed; ribs rude, irregular, becoming more crowded and smaller near the peristome; aperture suborbicular; peristome simple, straight; columellar region thickened with callus. Length $2\frac{1}{2}$ millim. Several examples were received from the Museum Godeffroy. The oblique longitudinal riblets will at once determine this from any other Polynesian species.

2. Georissa parva (Pease).

Cyclostoma parvum, Pease, Proc. Zool. Soc. 1864, p. 674.

Chondrella parva, Pease, Proc. Zool. Soc. 1871, pp. 465, 476; Pfeiffer, Mon. Pneum. iv. p. 294; Garrett, Journ. Acad. Nat. Sci. Philad. 1884, p. 106, pl. 3. fig. 41.

Hydrocena insularis, "Crosse," Mousson, in Museum Godeffroy, 1885.

Examples of this species received from the Museum Godeffroy, labelled "*Hydrocena insularis*, Crosse, Viti Levu," do not differ from Pease's *Chondrella parva* inhabiting the Society Isles. It is shaped like *G. juvenilis*, but is a little larger, and the whole surface is smooth and somewhat shining.

Genus Assiminea, Leach.

1. Assiminea nitida, Pease.

Hydrocena nitida, Pease, Proc. Zool. Soc. 1864, p. 674.

Assiminea nitida, Pease, Journ. de Conch. 1869, p. 165, pl. 7. fig. 11; Proc. Zool. Soc. 1871, p. 476; Schmeltz, Cat. Mus. Godeff. v. p. 103; Garrett, Proc. Phil. Acad. Nat. Sci. 1879, p. 29; Journ. Phil. Acad. Nat. Sci. 1881, p. 408, 1884, p. 107.

? *Realia nitida*, Pfeiffer, Mon. Pneum. iii. p. 202.

Hydrocena parvula, Mousson, Journ. de Conch. 1865, p. 184, 1873, p. 108.

Omphalotropis parvula, Pease, Journ. de Conch. 1869, p. 155 Proc. Zool. Soc. 1871, p. 476; Paetel, Cat. Conch. p. 124.

Assiminea parvula, Pease, Proc. Zool. Soc. 1871, p. 476; Schmeltz, Cat. Mus. Godeff. v. p. 103.

Realia parvula, Pfeiffer, Mon. Pneum. iii. p. 213.

Assiminea lucida, Pease, Journ. de Conch. 1869, p. 166, pl. 7. fig. 10; Proc. Zool. Soc. 1871, p. 476.

Assiminea ovata, "Pease," Schmeltz, Cat. Mus. Godeff. v. p. 103.

Hydrocena pygmæa, Gassies, Journ. de Conch. 1867, p. 63.

Assiminea pygmæa, Pease, Journ. de Conch. 1869, p. 165.

? *Realia pygmæa*, Pfeiffer, Mon. Pneum. iv. p. 214.

Hydrocena similis, Baird, in Cruise of the 'Curaçoa.'

This small species is generally distributed throughout all the groups from the Paumotus to the Viti Islands and New Caledonia, and ranges from near the sea-shore to about 2000 feet above the sea-level. They are found beneath decaying leaves, under stones and dead wood.

It may be recognized by its small size, $2\frac{1}{2}$–4 millim. long, smooth, shining surface, ovate-conical form, light or dark corneous colour, rarely with a faint transverse band on the last whorl.

2. Assiminea brevissima (Mousson).

Hydrocena brevissima, Mousson, Journ. de Conch. 1870, p. 194.

Found by Dr. Gräffe at Vanua Balavo.

A minute, broadly conical, thin, pellucid, shining, pale reddish horn-coloured species with $3\frac{1}{2}$ whorls. Length $1\frac{1}{2}$ millim.

3. Assiminea fischeriana (Gassies).

Hydrocena fischeriana, Gassies, Faune Nouv. Caléd. 1863, p. 115, pl. 7. fig. 18.

Realia fischeriana, Pfeiffer, Mon. Pneum. iv. p. 421.

Assiminea vitiensis, Garrett, Amer. Journ. Conch. 1872, p. 225, pl. 19. fig. 14.

Abundant on the margins of mangrove-swamps. It also occurs at New Caledonia.

Shaped like *A. nitida*, but larger, darker coloured, with or without one or two pale bands on the body-whorl.

The following species, though quoted as Viti shells, have been found neither by Dr. Gräffe nor by myself. Their existence in the group certainly needs confirmation.

Parmella planata, H. Adams, Proc. Zool. Soc. 1867, p. 308, pl. 19. fig. 20.

"Habitat Fiji Islands." (*H. Adams.*)

Nanina scorpio, Gould, Expl. Exp., Shells, p. 33, fig. 67.

"Feejee Islands." (*Gould.*)

Not identified by any subsequent author. It has been referred to the genus *Helicarion*.

Pupina adamsiana, Crosse, Journ. de Conch. 1871, p. 330; 1872, p. 60, pl. 2. fig. 6.

"Vanua Levu." (*Crosse.*)

Mr. Crosse cites the locality on the authority of a London dealer. The species is closely allied to if not identical with *Hargravesia polita*, a Solomon-Island species.

Helicina lens, Lea, Observ. i. p. 161, pl. 19. fig. 56.

"Feejee Islands." (*Lea.*)

Perhaps a unicoloured variety of *H. fulgora*, Gld.

Helix leucolena, Crosse, Journ. de Conch. 1867, p. 447; 1868, p. 171, pl. 6. fig. 6.

"Vanua Levu, Viti." (*Crosse.*)

Mr. Crosse, who obtained the type specimen from a London dealer, was informed it came from Vanua Levu. The type is foreign to the group.

Helix semirufa, Albers, Die Hel. p. 106.

"Habitat in insulis Fidschi." (*Albers.*)

Most certainly foreign to the group.

Partula tæniata, Mörch, is wrongly assigned to the Viti Islands. It is peculiar to Moorea, one of the Society Islands.

Partula alabastrina, Pfeiffer, Proc. Zool. Soc. 1856, p. 39. Solomon Isles (*Pfeiffer*); Fiji Islands (*Hartmann*).

Partula compressa, Pfeiffer (*Bulimus*), Zeitschr. f. Malak. 1850, p. 75. Fiji Islands (*Hartmann*).

5. Notes on a small Collection of Shells from the Loo Choo Islands. By Edgar A. Smith.

[Received February 10, 1887.]

Among the valuable collections made at the Loo Choo Islands by Mr. H. Pryer were a few shells, which he has liberally presented to the British Museum. As five out of the nine species are represented by fairly large series of specimens, I have been enabled to make a few observations on the variations they present. These may be of some use if they tend to prevent the multiplication of species which eventually have to be regarded merely as varieties. The specimens were obtained, I believe, from the largest island of the group, the name of which is variously written Loo Choo, Lu-Tschu, Lu Chu, Liew Kiew, and Riu Kiu.

1. Helix despecta, Gray.

This species, also *H. ravida*, Benson, *H. redfieldi*, *H. sieboldiana*, both of Pfeiffer, and *H. assimilis*, H. Adams, are all very much alike, and might well be considered varieties of one and the same